



Instruments and controls are grouped in logical and convenient positions in the Tudor IV cockpit, and the windscreen panels are few and large for a pressurized hull. A plan of the engineer's panels in the roof is given overleaf.

## An Hour at the Controls of "Star Leopard"

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IN spite of the unkind things which have been said about the Tudors, I recently stepped into the first pilot's seat of *Star Leopard* with a feeling of pleasurable anticipation. However ill-qualified one may be as a judge, there is nothing like trying a machine for oneself. It was about two years since I had flown a four-engined aircraft, a Lancaster, although I had spent short periods at the controls of such aircraft as the Constellation, Hermes and Lancasterian during the intervening period. In the circumstances, my experience as pilot of a Tudor IV reflects favourably on its docility and straightforward handling characteristics.

Pre-flight briefing had been confined to half an hour's examination of the checks, operating data and handling notes, followed by a short conversation with Avro pilots on the merits and otherwise of wheel landings when carrying passengers. The chief outcome of this talk, however, was that it is better to fly a nosewheel aircraft!

It was necessary to take in details of cockpit layout in a very short time. This was not difficult as all essential flying controls and instruments are neatly and sensibly arranged. On B.S.A.A. aircraft, flight engineers' duties are handled by the second pilot, and his panel and controls are arranged mainly in the roof. In operation, this arrangement released an extra 150 cu ft for freight or baggage. On this particular flight Avro's chief test pilot, Mr. "Jimmy" Orrell, flew in the right-hand seat, and we carried a crew including a flight engineer, who stood between us to operate his controls. An external intercom plug is provided on most marks of Tudor, so that ground staff and crew may be in contact during starting and closing down. A summary of the preliminary checks and

starting-up procedure follow, and other drills are given in their appropriate order.

### PRELIMINARY CHECK ON ENTERING AIRCRAFT

Hydraulic accumulator not less than 220 lb/sq in. 1 and 2 fuel tank cocks on. Cross-feed cock off. Booster pumps off. Ground/flight switch to "flight." Starter isolating switch on. Circuit breaker "start" push-buttons in. Undercarriage indicator lights all on and green. Fuel contents gauge registering correctly. Gallons-gone meters set to zero. Flow meter by-pass set. Engine master cocks off. Pneumatic supply pressure over 160 lb/sq in. Undercarriage selector lever locked down.

### ENGINE STARTING AND WARMING

Test fuel pumps by ammeter. Ground/flight switch to "ground" the plug-in starter battery. Engine master cocks off. Throttles half-inch open. Aircrew controls fully fine. Supercharger control M.S. Warning light not showing. Hot and cold intake "cold." Radiator shutters override switch on "auto." Booster coil isolating switch on. Then:—(1) Turn on first engine master cock. (2) Select port or starboard as appropriate on priming pump master switch. (3) Switch on appropriate side booster pump until pressure shows 10 lb/sq in. (4) Press priming pump button. (5) Switch-on ignition and press starter button; when engine is running, booster coil and priming pump switches to "off." (6) When all four engines are running, ground/flight switch back to "flight."

After being shown the starting-up procedure for the four Merlins, I sat back waiting to be taxied off the tarmac, but my composure was short lived. A characteristic brief and to-the-point instruction from my "second pilot," followed by the folding of his arms, told me that I was taking over from the start. The Tudor was facing the hangars on a sloping tarmac with just room to turn, so the first thing to do was to start rolling and then to turn to starboard as sharply as possible without risking damage to the starboard tyre. The engines, of which the first pilot